

The FP S-Compact Gateway is an IIoT gateway in a compact wall mounted housing. There are two models available with different mobile wireless options.

Model	RS232	RS485	M-Bus	Mobile opt.	Part number
FP S-Compact C851 LAN	1x	1x	1x *	-	50.0058.1320.00
FP S-Compact C851 BB	1x	1x	1x *	4G, 3G, 2G	50.0058.1330.00

* implemented via S1-expansion module "S1-MB10" for up to 10 M-Bus loads

All devices are equipped with a LAN port, a USB 2.0 host port and a slot for an I/O expansion module (I/O expansion slot is already used for M-Bus expansion).



1 Main functions

Main functions	
Alarm and fault indicator	Automatic generation and sending of fault messages from message templates and current values (from PLC or Gateway). Actions can trigger up to 100 definable events depending on the time requirements. Address book with up to 100 addresses. 100 message texts, 100 alarms
Acknowledgement	Acknowledgement option for alarms and triggering of alarm chains if the acknowledgement does not arrive within a set time. Acknowledgement via SMS or e-mail possible.
Alarm chain	Multiple levels of alarm actions and receivers if alarm messages are not acknowledged in time. Alarm actions can be sent by SMS, e-mail or switching actions.
Event	Event, e.g.: Error, incoming call, PLC communication interrupted, acknowledgement of an alarm. All actions in the Gateway are triggered by events.
SMS	Sending and receiving of SMS
Remote maintenance	Configuration of the Gateway and the connected PLC via an existing IP connection.
Security	Local and remote configuration can be protected from unauthorised access using a login and password.
Web-server	Integrated web-server for local access to web applications (e.g. for commissioning)
EDGE functions	Extensive data handling functions (EDGE computing) integrated by users in a freely programmable way, e.g. logical links, thresholding
Data logging	Large integrated log memory (power failure fail-safe due to flash memory) Up to 100 MB of log memory available for user data; up to 100 log files definable
Cloud protocols	Cloud protocols integrated from notable Cloud providers incl. Cloud command channel -> Gateway e.g. Deutsche Telekom CoT, Cumulocity, AWS, Juconn, generic MQTT
Security Protocols	TLS 1.2, VPN, your own certificates and keys can be configured FTP, SFTP, SMTP, POP3, SMS, MQTT, http, https, telnet, and more
Remote switching	Remote switching of the variable values of the connected controller by sending switching commands as SMS or e-mail to the Gateway. Password protection
Fieldbus protocols Meter protocols	Many integrated field bus protocols for meters, e.g. Modbus, M-Bus, EN 61107, 1-Wire, Aurora, wMBus via optional FP wMBus adapter, ...

2 System architecture

System architecture	
CPU	492 MHz, ARM Cortex-A5, ATMEL SAMA5D27
RAM	128 MB DDR2-RAM
FLASH Memory	128 MB on-board
System clock (Battery-backed)	For logging of events, e.g.: <ul style="list-style-type: none"> - Errors - incoming calls, - PLC or Cloud communication interrupted, - acknowledging an alarm All actions in the Gateway are triggered by events.

3 Interfaces

Serial interfaces (model dependent)	
COM1 RS232	5-pin screw connection max. 921,600 bps, not galvanically isolated ITU-T V.24, V.28, hardware handshake. Signals: RTS, CTS, GND, RxD, TxD Transmission distance: 12 m (39 ft)
COM2 RS485	3-pin screw connection, DTE in accordance with EIA/TIA-485, max. 1 Mbit/s, not galvanically isolated; no internal termination Transmission distance of max. 1200 m (4000 ft) depending on the transmission rate, bus and cable type
M-Bus via expansion module "S1-MB10"	Conformity: DIN EN 13757-2, DIN EN 13757-3 M-Bus master for up to 10 M-Bus loads (counter); short-circuit protection, not galvanically isolated M-Bus voltage: 36 V, bus length: max. 50 m (164 ft) 3 screw terminals, grid dimension 5.08 mm (0.2"), cross-section max. 2.5 mm ² (14 AWG) Data rate: 300 Baud – 19200 Baud Data formats: 8 data bits, 1 start bit, 1 stop bit and 1 parity bit (even parity)

Ethernet	
Connection	10/100 Base-T IEEE 802.3, RJ45 connector (8P8C with 1 LED), shielded
Operating mode	Auto negotiation, Auto MDI-X (crossover cable not required)
Status LEDs	Yellow off: no connection Lights up yellow: Connection active (10 / 100 Mbit/s) Flashing yellow: Data is being transferred
Galvanic isolation	1500 V (V_{rms} min.)

4 WiFi stick (optional)

WiFi stick (available as an option)	
WiFi	USB stick model "90.0072.8100.00"
Wireless type	IEEE 802.11b/g/n WPS (WiFi Protected Setup)
Frequency	1T1R 2.4 GHz
Data rates	IEEE 802.11b: 11 MBit/s max. IEEE 802.11g: 54 MBit/s max. IEEE 802.11n: 150 MBit/s max.
Network modes	Ad-hoc, infrastructure
Encryption	WEP-64, WEP-128, TKIP, WPA2
Antenna connection	Internal
Temperature range	0 .. 40 °C (32 .. 104 °F)

5 Mobile wireless modem (optional)

LTE: (4G)		Only for model C851 BB (part number 50.0058.1330.00)
Frequencies	8-Band LTE (B1, B2, B3, B5, B7, B8, B20; all bands with diversity) Quad Band 3G (850, 900 1800, 1900 MHz) Quad Band 2G (850, 900 1800, 1900 MHz)	
Antenna	SMA socket (female), coaxial, impedance 50 Ω	
Data transmission	WCDMA CS: Downlink: 64 kbps, Uplink: 64 kbps GPRS: Downlink: 85.6 kbps, Uplink: 85.6 kbps EDGE: Downlink: 236.8 kbps, Uplink: 236.8 kbps WCDMA PS: Downlink: 384 kbps, Uplink: 384 kbps HSPA+: Downlink: 21.6 Mbps, Uplink: 5.76 Mbps DC-HSPA+: Downlink: 43.2 Mbps, Uplink: 5.76 Mbps LTE FDD: Downlink: 150 Mbps, Uplink: 50 Mbps @ 20M BW cat4 Transmission power: 2 W GSM-GPRS @ 850/900 MHz 1 W GSM-GPRS @ 1800/1900 MHz 0.5 W EGPRS @ 850/900 MHz 0.4 W EGPRS @ 1800/1900 MHz 0.25 W UMTS @ 850/900/1900/1950 MHz	

6 Operating elements

Operating elements	
Service buttons	Can be freely configured by the user via TiXML programming
Signal LED	Can be configured via TiXML (red/green flashing function, 32 patterns), e.g. "red = error" and "green = functioning properly"
Speakers	Mini speakers for audio signals; can be controlled using TiXML, e.g. continuous sound for alarm
System LEDs	Power, Process/Data out, LAN, Line, Mode, WiFi
WiFi button	For switching the WiFi subsystem on and off or for unloading (unmounting) a USB memory stick (only accessible when housing is open)

7 Firmware

Firmware	
TECom	Tixi Embedded Communication System TECom TECom provides all basic functions which are required for close communication with controllers and remote communication in telephone networks, mobile wireless networks, LAN, Wi-Fi and IP based networks.
Operating system	Embedded Linux
File system	UBIFS: Log data and process variables (in RAM) remain in flash memory in the event of a power failure
OEM functions	The firmware can be expanded for OEM customers, e.g. for: New control protocols, calculating or processing functions or web server functions.
Data security	Use of the industry standard libraries Open SSL (TLS 1.2) and OpenVPN

8 General data

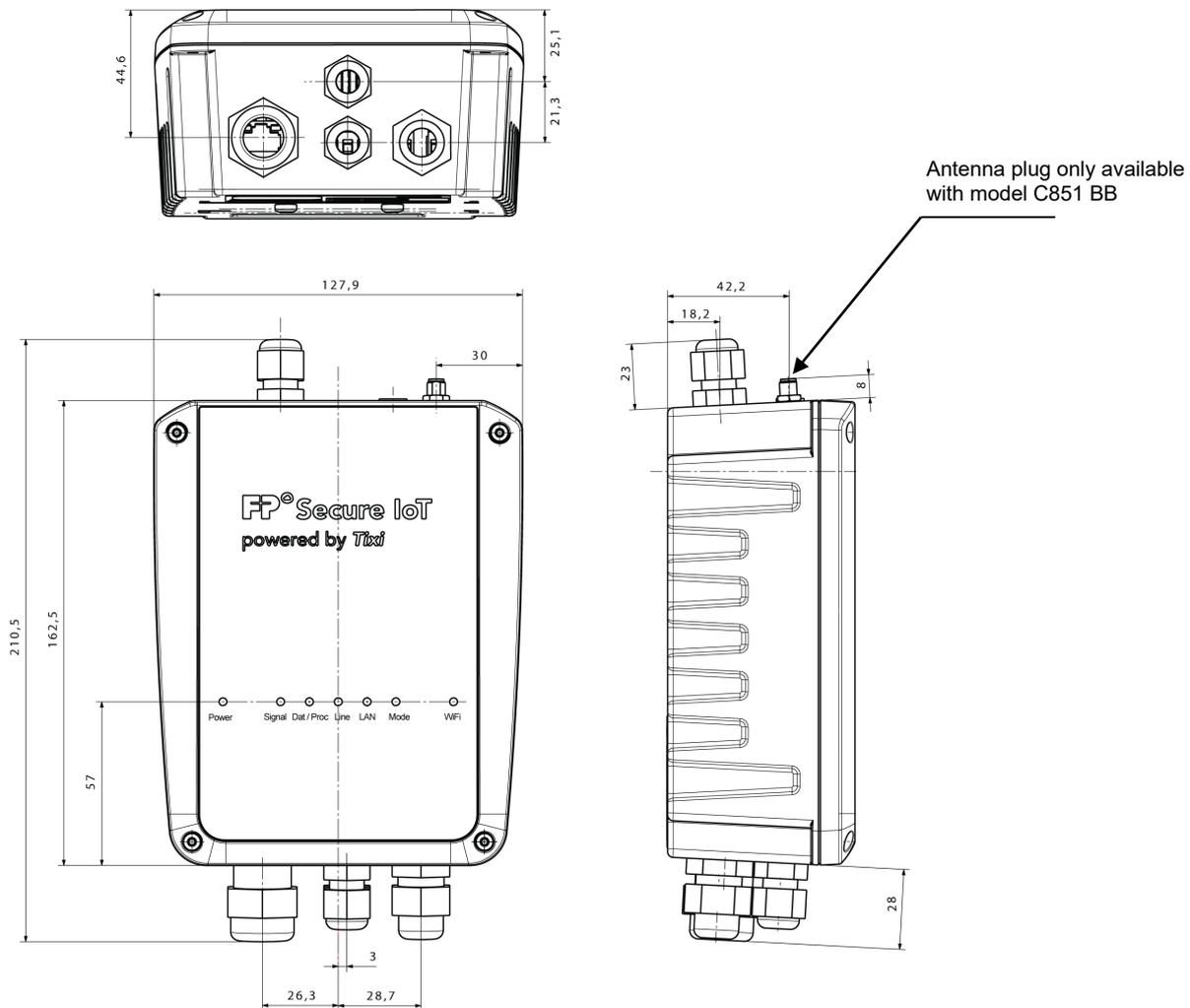
Power supply	
Standard device	100 .. 240 V ac 50 / 60 Hz; 2 screw terminals; conductor cross section max. 2.5 mm ² (14 AWG) Use copper (CU) conductors only! Typical power consumption: 12.5 W; max. current: 0.25 A Internal protection with a fuse An all-pole (L, N) disconnecting device with a minimum contact distance of 3 mm (0.12") must be used in the electrical system of the building; Disconnecting device must be easy to access
Backup battery	CR2032 backup battery for RTC (real time clock), service life >= 10 years, Replacement by the user not possible

Housing	
Installation	Useable for wall mounting and din rail mounting; mounting material available as an option
Type	Plastic housing with 2 parts; lower part: RAL 9005; upper part: RAL D2 000 90 00 Material: PC-ABS, UL94-V0
OEM housing	Colour and lid film can be adjusted (for an additional fee)
Dimensions HxWxD	210.5 mm x 127.9 mm x 65 mm (8.29" x 5.04" x 2.56") (with antenna plug)
Weight	approx. 540 g (1 lb 3 oz)

Conformity and use	
Conformity	 2014/53/EU Radio Equipment Directive RED 2011/65/EU RoHS 2012/19/EU WEEE
Temperature range	Operation: -25 °C .. +65 °C (-13 °F .. 149 °F) Storage: -25 °C .. +85 °C (-13 °F .. 185 °F)
Permitted humidity	5 .. 95 % relative humidity, non-condensing
Protection class	IP65
Electromagnetic compatibility	Class B

9 Dimensions

Dimensions (incl. cable ducts H x W x D): 210.5 mm x 127.9 mm x 65 mm (8.29" x 5.04" x 2.56")



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Disclaimer

This datasheet was created and checked with great care and replaces all previously published versions.

The data is based on the technical information known at the time of creation.

Nevertheless errors cannot be ruled out. We reserve the right to make changes that serve technical progress.